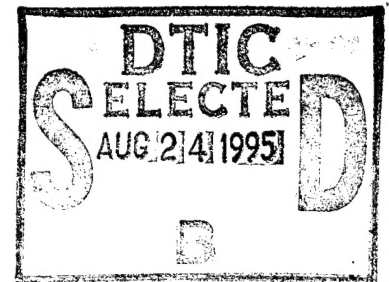**NAVAL WAR COLLEGE**
Newport, R.I.

OPERATIONAL FIRES:
**PAST, PRESENT, AND FUTURE!**

by

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LIEUTENANT COLONEL, U.S.M.C.

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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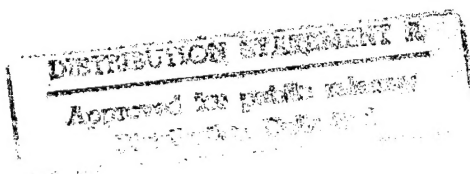
16 May 1995

Paper directed by
CAPTAIN D. WATSON
Chairman, Joint Military Operations Department

REPORT DOCUMENTATION PAGE

1. Report Security Classification:	*Unclassified*
2. Security Classification Authority:	
3. Declassification/Downgrading Schedule:	
4. Distribution/Availability of Report:	DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.

5. Name of Performing Organization: Joint Military Operations Department

6. Office Symbol: 1C	7. Address: Naval War College, 686 Cushing Rd., Newport, RI 02841-5010

8. Title (Include Security Classification): (Unclassified)
OPERATIONAL FIRES: PAST, PRESENT, AND FUTURE! (U)

9. Personal Authors: LTCOL. THOMAS R. KELLY, USMC

10. Type of Report: Final	11. Date of Report: 16 MAY 1995

12. Page Count: 20

13. Supplementary Notation: A paper submitted to the Faculty of the Naval War College in partial
satisfaction of the requirements of the Joint Military Operations Department.
The contents of this paper reflect my own personal views and are not necessarily
endorsed by the Naval War College or the Department of the Navy.

14. Ten key words that relate to your paper:
OPERATIONAL FIRES, OPERATION ICEBERG, OKINAWA, PERSIAN GULF WAR, DESERT STORM

15. Abstract: (SEE ATTACHED)

16. Distribution / Availability of Abstract:	Unclassified X	Same As Rpt	DTIC Users

18. Abstract Security Classification: *Unclassified*

19. Name of Responsible Individual: Chairman, Joint Military Operations Department

20. Telephone: (401) 841-3414/4120	21. Office Symbol: 1C

ABSTRACT

This paper provides an analysis of operational fires and certain key elements that are required for the effective employment of operational fires. The paper focuses on the purposes of operational fires, and how they are employed on the battlefield.

First, the paper provides background information on the evolution of operational art during World War II. It discusses how Vietnam experiences and the Goldwater-Nichols Act influenced senior military leaders operational thinking prior to the Persian Gulf War. Second, it identifies how operational fires were employed during the Battle of Okinawa, Operation Iceberg. Third, the paper evaluates how battlefield dynamics, technology, political objectives, and constraints influenced the employment of operational fires during the Persian Gulf War, Operation Desert Storm. Fourth, the paper focuses on the future battlefield, and how operational fires may contribute in shaping future battlespace.

The paper illustrates how battlefield dynamics, technology, availability of assets, and constraints placed on military operations affected the employment of operation fires. The paper highlights the importance of incorporating operational fires into the operational design in order to synchronize them with operational maneuver, deception, and intelligence. The paper predicts that the commander's ability to shape the future battlespace with operational fires will be limited only by the commander's ability to think operationally.

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CHAPTER 1

INTRODUCTION

> Wars and battles are not lost by private soldiers.
> They win them, but don't lose them. They are lost by
> commanders, staffs, and troop leaders, and they are
> often lost long before they start.[1]

The sea was calm and the surf conditions moderate when the

command "Land the landing force" echoed throughout one of the

greatest naval armadas assembled in history. At 0406 on 1

April 1945, 182,000 joint assault troops supported by forty

carriers, eighteen battleships, 200 destroyers and hundreds of

other ships of the line engaged a tenacious enemy on the island

of Okinawa.[2] Okinawa was the culmination of over three years

of joint amphibious warfare in the Pacific.   The commanders

were seasoned veterans who had learned many lessons through

trial by fire and incorporated those lessons into naval, air,

and ground operations.[3] Operational art and operational

thinking were acquired on the field of battle.

Forty-five years later, 520,000 joint U.S. and coalition

forces combined their strength to challenge the fourth largest

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[1]FMFM 1-0, <u>Leading Marines</u> (Washington, D.C.: Government
Printing Office, 1995), 93.

[2]Benis M. Frank, <u>Okinawa: Capstone to Victory</u> (New York:
Ballantine Books Inc., 1970), 27, 37, 50.

[3]Ibid., 6.

army in the world. Forty-three days of intensive air strikes and a 100 hour ground offensive later, Kuwait was liberated and Iraqi forces were thoroughly defeated. As a result of the Goldwater-Nichols Act and senior military leaders' Vietnam experiences where tactical victories did not equate to winning a war, doctrine was developed stressing maneuver warfare, joint operations under a unified commander, and combined operations.[4] The old warfighting model of wearing an enemy down with industrial might was abandoned and the strategy adopted took advantage of technological superiority while limiting casualties.[5] Operational art and operational thinking were acquired through joint/combined exercises, computer war games, and the curriculum of service war colleges. Although U.S. forces had not conducted large scale combat operations for almost two decades, the Persian Gulf War validated the soundness of this doctrine.

The scope of this paper is limited to an analysis of operational fires and certain key elements that are required for effective employment of operational fires. The case studies of Operation Iceberg (Okinawa) and Desert Shield/Storm (Persian Gulf War) illustrate how battlefield dynamics, technology, availability of assets, and rules of engagement

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[4]Report to Congress "Conduct of the Persian Gulf War" Chapter I through Chapter VIII, by Dick Cheney, Sec. of Def. (Washington, D.C.: Government Printing Office, 1992), 414.

[5]James Kitfield, Prodigal Soldiers (New York: Simon & Schuster, 1995), cover.

affect an operational commander's employment of lethal and nonlethal operational fires. The purposes of operational fires have not changed over time; however, the complexity, technology, and cost of assets on the modern battlefield dictate that operational fires must be coordinated and synchronized if the commander is to obtain synergistic effects from his operational design.

Professor Vego stated that it is the purpose and timing of operational fires that differentiate them from tactical fires. Operational fires have a decisive impact on the outcome of a major operation or campaign. They attack targets at the operational depth of the enemy's defenses and accomplish an operational objective. They are planned to cause the enemy to react operationally, not tactically.[6] The principal purposes of operational fires are as follows: (1) Facilitate operational maneuver of our own forces, (2) Prevent or disrupt operational maneuver by the enemy, (3) Isolate the area of operations, (4) Prevent the arrival of enemy reinforcements, (5) Destroy or neutralize the enemy's operational reserve, (6) Destroy or neutralize the enemy's critical functions and facilities, and (7) Deceive the enemy as to the sector of main effort.[7]

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[6]Milan N. Vego, The Theater Functional Areas Rough Draft Dr(United States Naval War College, 1995), 22.

[7]Ibid., 22-23.

There are two types of operational fires available to the commander to assist him in shaping the battlefield: lethal and nonlethal. Lethal fires are designed to "delay, disrupt, destroy, or degrade enemy operational forces or critical functions and facilities." Lethal fires may be delivered by air, sea-based, space, and ground assets. Nonlethal fires are designed to "impair, disrupt, or delay the performance of enemy operational forces, functions, and facilities." Nonlethal fires include the spectrum of electronic warfare and psychological operations.[8] To be successful, both types of operational fires must be coordinated. Targets must be accurately located, target priorities established, and appropriate assets allocated or assigned to destroy/neutralize the target and to provide battle damage assessments (BDA).[9]

[8]Ibid., 23-25.

[9]Vego, Fundamentals of Operational Design Rough Draft (United States Naval War College, 1995), 14-15.

CHAPTER 2

OPERATIONAL FIRES: PAST

The dust, smoke, and flashes of fire from bombing and
shelling...cover the ground and soar to the sky,
presenting a scene of unsurpassed grandeur.[1]

The strategic goal in the Pacific theater called for the

"Unconditional Surrender" of Japan. On 3 October 1944, the

Joint Chiefs of Staff reassessed the Pacific campaign plans.

They decided to sequence major operations in the Pacific by

invading Luzon in December 1944, followed by Iwo Jima in

January 1945, with the final operational objective being

Okinawa. The timing of the Okinawa invasion would be

predicated by the completion of operations on Iwo Jima.[2] The

strategic importance of Okinawa was its location. Okinawa was

350 miles from Japan's southern most island, Kyushu, 330 miles

from Formosa, and 450 miles from Shanghai. Okinawa was only

sixty miles long and between two and eighteen miles wide, but

it and the surrounding islands offered numerous airbases and

ports which when captured would facilitate the attainment of

the strategic goal.[3]

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[1]James H. Belote and William M. Belote, <u>Typhoon of Steel:
The Battle for Okinawa</u> (New York: Harpers & Row, 1970), 54.

[2]Frank, 11.

[3]Ibid., 14.

The theater CINC, Adm Chester W. Nimitz, designated Adm Raymond A. Spruance as implementing commander; Vadm Raymond K. Turner as Commander of the Joint Expeditionary Force and Commander, Amphibious Forces (CATF); LtGen Simon B. Buckner , CG Tenth Army, as CG Expeditionary Forces (CLF).[4] Applying the lessons learned since Guadalcanal, these clearly defined command relationships and the close coordination of staffs ensured unity of effort for the largest amphibious operation of World War II. Forces assigned and command relationships established, the commanders wasted no time in shaping the battlefield with operational fires.

The American war industry had reached its peak, and the commanders would use the vast quantities of assets to wear down the enemy's operational forces. Adm Turner assumed that Japanese air would react bitterly, that enemy submarines would be active, that the Japanese fleet might sortie and attack, and that the enemy might try to reinforce Okinawa.[5] On 10 October 1944, the first carrier strikes and naval bombardment commenced, targeting Okinawa airfields, submarine pins, ports, and garrisons. B-29 bombers and carrier air conducted aerial reconnaissance missions which enabled the Task Force to develop maps of the joint area of operations, and establish a common basis for targeting efforts. Submarines interdicted the Sea

[4]Chas. S. Nichols, Jr. and Henry I. Shaw, Jr., Okinawa: Victory in the Pacific (Washington, D.C.: Government Printing Office, 1955), 16-18.

[5]Frank, 31.

Lines of Communications (SLOCs), and provided critical
intelligence on enemy shipping which enhanced the effectiveness
of aerial and surface engagements.

Throughout January and February 1945 carrier based air,
land based B-29s, submarines, and naval bombardments
interdicted the SLOCs and pounded Okinawa, Formosa, China
ports, and the Japanese homeland. By mid-February, the enemy
garrisons on Okinawa and the surrounding island chain were
effectively isolated.[6]

As L-Day drew closer, operational fires covered the work
of Underwater Demolition Teams as they prepared the beaches for
amphibious landings, and insertion of reconnaissance teams as
they registered targets for the invasions. On L-Day, a feint
landing was conducted on the southeast side of the island to
deceive the enemy as to the sector of main effort. Operational
fires were incorporated into the deception plan. As the
assault force approached the beach, artillery, naval surface
fire support, and air saturated the beachhead which enabled our
forces to operationally maneuver. Over 3,000 air sorties and
27,000 5-inch or heavier caliber ammunition were fired. There
was an average of twenty-five rounds fired into every hundred
yard square.[7] As a result of the landing, the Japanese ordered
its remaining war ships (i.e., Yamato Group) into action.
Based upon a radio intercept, submarine reports, and

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[6]Nichols, 36-37.

[7]Frank, 43-53.

reconnaissance planes, the <u>Yamato</u> Group was intercepted, engaged, and destroyed.[8]

Nonlethal operational fires were used throughout the operation. Navajo Indians contributed to the enemy's inability to derive electronic information. Additionally, over eight million leaflets were dropped throughout the campaign. The leaflets urged the Japanese to surrender before being destroyed. The leaflets had little effect on the fiercely loyal Japanese (e.g., 131,000 Japanese killed, only 11,000 captured/surrendered), and proved to be counterproductive when civilians who possessed them were killed by the Japanese.[9] Psychological operations must take into account cultural and societal mores in order to be effective.

The coordination, deconfliction, and asset allocation procedures used in Operation Iceberg were very similar to the process used today. The Implementing Commander, Adm Spruance, apportioned the assets; the Joint Force Commander, Adm Turner, allocated assets. With the exception of the B-29 bombers, all air assets supporting the operation were assigned or coordinated through the joint air task command, Tactical Air Force (TAF) including the Air Defense Command (ADC) which provided early warning, intercept, and vectoring. The ADC provided the vital link in protecting the fleet against

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[8]George Feifer, <u>Tennozan: The Battle of Okinawa and the Atomic Bomb</u> (New York: Ticknor & Fields, 1972), 21-26.

[9]Ibid., 33, 292, 342.

<u>Kamikaze</u> attacks.[10]   A Joint Targeting Board was established,
and functioned to deconflict and validate targets; target files
were updated as battle damage assessments were reported.[11]
Current CATF and CLF relationships were established to phase
control of the operation ashore.[12]   Air Liaison Parties
attached to all divisions screened and submitted air support
requests in support of the ground forces.   TAF planes expended
4,725 tons of bombs, 37,653 5-inch rockets, and 1,116 tanks of
napalm.[13]

Operation Iceberg demonstrated how operational fires can
assist operational commanders to obtain battlespace dominance,
to project power, and to facilitate operational maneuver and
deception.   It illustrated how a nation's industrial might can
wear down an enemy with massive firepower.   However, in the
process, over 150,000 civilians became casualties of war on
Okinawa, and hundreds of thousands suffered the same fate on
the Japanese homeland.[14]

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[10]Frank, 28.

[11]Benis M. Frank and Henry I. Shaw, Jr., <u>History of U.S.
Marine Corps Operations in World War II</u>. Vol. V, <u>Victory and
Occupation</u> (Washington, D.C.: Government Printing Office, 1968),
102-103.

[12]Nichols, 17-19.

[13]Ibid., 264.

[14]Feifer, 533.

CHAPTER 3

OPERATIONAL FIRES: PRESENT

> The destruction of economic and military targets
> using precision guided weapons to a great depth will
> be accompanied by simultaneous or preemptive use of
> electronic warfare systems....[1]

Forty-five years after Operation Iceberg, the battlefield

dynamics shifted: (1) from a compressed, heavily defended, and

fortified small island to the vastness of the desert, (2) from

inaccuracy of weapon systems being compensated for by massive

bombardments to precision guided munitions (PGM), (3) from

attrition warfare to maneuver warfare, (4) from days to weeks

to receive intelligence/BDA to near real time intelligence

measured in hours/minutes/seconds, (5) from a three dimensional

battlefield (air, land, sea) to a four dimensional battlefield

(i.e., space--which enhanced navigation using Global

Positioning Systems (GPS), intelligence and surveillance,

communication linkages, weather information, and missile

warnings). Years of developing joint doctrine, incorporating

advanced technologies, and conducting joint/combined exercises

ensured that the senior military leaders were prepared to

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[1] James H. Slagle, "New Russian Military Doctrine: Sign of
the Times," Parameters, Vol. XXIV, (Spring 1994): Quoted from
excerpts of 1992 Russian Draft Doctrine, 93.

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employ the highly trained combat forces on the complex modern battlefield.

CENTCOM's campaign plan contained four phases: (1) Strategic air campaign, (2) Air supremacy in Kuwaiti Theater of Operations (KTO), (3) Battlefield preparation, (4) Offensive ground campaign. All phases were designed to attack Iraqi Centers of Gravity (i.e., Command and control (C2) and leadership of Saddam Hussein, weapons of mass destruction (WMD), and the Republican Guard).[2] Detailed and overlapping surveillance of the battlefield by space assets, SOF forces, airborne platforms, and human intelligence enabled joint planners to accurately locate and validate targets. One of the constraints in planning and execution of the campaign was the necessity of avoiding collateral damage and minimizing civilian casualties.[3]

As Phase I of the campaign commenced on 17 January 1991, lethal and nonlethal fires were coordinated and synchronized to simultaneously engage Iraq's C2, WMD, and Republican Guard divisions.[4] The elaborate air defense network protecting Iraq was neutralized by EW aircraft, SOF Pave Low and Army helicopters (using space-based systems to navigate), tactical air launched decoys, cruise missiles, Tomahawks from naval

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[2]Report to Congress "Conduct of the Persian Gulf War" Chapter I through VIII, by Dick Cheney, Sec. of Def. (Washington, D.C.: Government Printing Office, 1992), 94, 98.

[3]Ibid., 131.

[4]Ibid., 118.

platforms, stealth technology, Army tactical missile systems (ATACMS), and PGMs. By creating gaps in Iraqi radar coverage and C2 networks, non-stealth aircraft were able to attack high priority targets and neutralize critical facilities while adhering to operational constraints.[5]

Upon completion of Phases I and II, operational fires were employed to shape the battlefield for the upcoming ground offensive. Psychological operations were employed extensively throughout the KTO. Radio broadcast and leaflet drops coupled with air bombardments weakened the will of the Iraqi soldier to fight. Supply lines were severed which isolated the troops from logistical support. Iraq's operational reserve (i.e., Republican Guard) was engaged continuously. Throughout the air phases, one of the highest priority targets was the SCUD missile, and assets were allocated accordingly. The political sensitivity of Israel entering the war, and the affect that would have on coalition members dictated targeting efforts by Joint Surveillance Target Attack Radar System (JSTARS) and other surveillance systems in order to provide rapid response.[6] Political considerations were incorporated into the planning, allocation, and targeting processes.

As the ground offensive approached, the concentration of operational fires in the KTO deceived the enemy as to the sector of main effort. Lethal and nonlethal fires including

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[5]Ibid., 149-159.

[6]Ibid., 191.

electronic deception allowed coalition forces to operationally maneuver without detection. Using surprise and maneuver warfare, U.S. and coalition forces crossed the line of departure on 24 February, 1991. Gaps in the enemy's defenses had been located and targeted as forces massed to attack. Operational/tactical commanders (i.e., Army Corps, MEF) used preparation fires and ATACMS to support maneuver. For the first time in combat operations, the operational commander could range high-payoff targets well beyond the Fire Support Coordination Line into the deep battle area with organic weapons (ATACMS).[7] Psychological operations encouraged over 80,000 Iraqi soldiers to surrender.[8] Operational fires were used to destroy the retreating enemy force from the KTO. Massive air strikes destroyed over 200 tanks on the "Highway of Death".[9] While the attack of retreating forces did not violate the Laws of Armed Conflict, it may have been a factor in the political decision to terminate hostilities before the warfighter achieved his military objective of destroying the Republican Guard. Hence, military objectives must be

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[7]This capability has created opposing views between the Army and Air Force as to who controls the deep battle airspace--JFACC or ground commander. Additionally, the Army views the FSCL as a permissive fire support measure while the Air Force views it as a restrictive measure. The Air Force wants all missions cleared and scheduled while the ground commander requires flexibility which will support his scheme of maneuver.

[8]Ibid., XV.

[9]Ibid., 387.

reassessed to ensure that they remain in synch with political
objectives.

Battlefield dynamics, constraints, technological
advantages, and the fourth dimension of space must all be
considered when planning and executing operational fires.
Throughout Desert Storm, the coordination and synchronization
of lethal and nonlethal operational fires were complementary in
nature. Near real time intelligence and surveillance enabled
planners and commanders to have an accurate picture of the
battlefield. It allowed them to validate targets, shift target
priorities, and allocate assets. The use of PGMs demonstrated
to the world that war can be fought with minimal collateral
damage and civilian casualties; however, the use of PGMs in a
prolonged conflict may preclude the same results due to limited
supply and high cost. Desert Storm validated that the purposes
of operational fires are still applicable on the modern
battlefield.

CHAPTER 4

OPERATIONAL FIRES: FUTURE

> We may eventually come to agree that a threat to
> national security means anything on the globe which
> challenges a people's health, economic well-being,
> social stability, and political peace.[1]

Future military operations will involve increasingly high-

technology equipment, joint/multinational forces,

multidimensional maneuver, PGMs, and enhanced situational

awareness.   Space-based assets will provide a larger portion of

intelligence, communications, and navigational support.

Informational warfare will be required to manipulate, isolate,

or negate portions of the electronic spectrum.[2] Battlespace

will be determined by the maximum capabilities of a unit to

acquire and engage the enemy. Adm Owens, Vice CJCS, envisions

that the future battlefield will expand to over 300 miles.

This expanded battlespace will allow simultaneous engagement in

depth by a variety of joint warfighting systems.   Units will

become increasingly dispersed and conduct maneuver by both

fires and rapid physical mass. Battlespace dominance will be

achieved through high-tempo, all weather, air-land-sea

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[1]Paul Kennedy, <u>Preparing for the Twenty-First Century</u> (New York: Random House, 1993), 129-130.

[2]TRADOC Pamphlet 525-5, <u>Force XXI Operations</u> (Fort Monroe, Va.: TRADOC, 1994), 2-5 through 2-7.

continuous operations. Nonlethal and lethal striking power will overwhelm the enemy's capability to react.[3] At every level of war, sensor-to-shooter links will shorten the commander's decision cycle. "In the future, the technologically altered battlefield dimensions of time and space will merge the three levels of war into a new single structure."[4]

Whether in the past, present, or future, there will never be the **perfect** plan that will remain unchanged after contact is made with the enemy. Battlefield dynamics, technological advances, cultural differences, political consideration, and constraints placed on military operations will dictate that no two wars will ever be fought the same. To be successful on the fields of battle, the operational commander and his staff must be able to think operationally, and to answer the four questions of the operational artist: (1) What military conditions must be produced in the theater of operations to achieve the strategic goal (Ends)?, (2) What sequence of actions is most likely to produce that condition (Ways)?, (3) How should the resources be applied to accomplish the desired sequence of actions (Means)?, (4) What are the costs and risks of performing that sequence of actions?

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[3]Ibid., 3-8 through 3-21.

[4]Douglas A. MacGregor, "Future Battle: The Merging Levels of War," Parameters, (U.S. Army War College Quarterly, Winter 1992-93), 33.

When answering these four questions, the commander will determine how lethal and nonlethal fires can contribute to achieving the desired end state. In Operation Iceberg and Operation Desert Storm, operational fires made a decisive impact on the outcome of major operations. Operational fires were incorporated into the operational design, and were constantly reassessed to ensure that the engagement of targets, target priorities, and allocation of assets were in synch with military/political objectives. Operational fires were not planned in a vacuum. They were coordinated and synchronized with operational maneuver, deception, intelligence, surveillance, and reconnaissance. The purposes of operational fires have not changed over time, and will remain valid in the future. As battlespace dynamics, technology, and complexity of the battlefields change, the operational commander's ability to shape the battlefield with operational fires will be limited only by his ability to think operationally.

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